Private individual ambulatory health care providers in Madhya Pradesh province, India

Costa, Ayesha; Eriksson, Bo; Diwan, Vinod K.

J Public Health (2009) 17:235–241
DOI 10.1007/s10389-008-0245-2

ORIGINAL ARTICLE

Private individual ambulatory health care providers in Madhya Pradesh province, India

Ayesha De Costa · Bo Eriksson · Vinod K. Diwan

Received: 24 April 2008 / Accepted: 2 December 2008 / Published online: 17 January 2009

Abstract
Background Ambulatory health care services are a major contributor to the large and inequitable health financing burdens (largely out-of-pocket) faced by households in India. The private sector has a virtual monopoly over ambulatory curative services in rural and urban India. Despite this, there is little knowledge about who these providers are, their numbers, distribution, and activities.
Aim This study describes the numbers, gender, distribution, and characteristics of private individual ambulatory care providers in Madhya Pradesh (60.4 million people), one of India's largest provinces. It discusses the suitability of this provider mix to deal with maternal and child health, a major health priority in the province.
Method A survey enlisting all health care providers was conducted in the 52,117 villages and 394 towns of the province.
Results There were 14,046 private qualified physicians (12.5% women), 57,684 qualified paramedics (3.4% women), and 89,090 unqualified providers (10% women) providing ambulatory services in individual setups. In addition, 55,393 traditional birth attendants provided home-based intranatal care. The macro organization of these providers in this setting is presented. Given the high levels of maternal and child mortality in the province, excessive reliance is placed on less than competent providers as these present lower access barriers.
Conclusion Given the public health priorities in this province (maternal and child health), the provider mix is not optimally suited to the populations' needs. There is a lack of competent qualified care required to deal with the major causes of morbidity and mortality, particularly in rural areas. Access to qualified women providers is low. The lack of a cadre of qualified midwives possibly contributes to some of the high maternal mortality observed in this province.

Keywords Human resources · Maldistribution · Gender · Health services India

A. De Costa (✉) · B. Eriksson · V. K. Diwan
Division of International Health,
Department of Public Health Sciences, Karolinska Institutet,
Nobels Väg 9,
171 77 Stockholm, Sweden
e-mail: ayesha_de_costa@yahoo.co.uk

A. De Costa · V. K. Diwan
Department of Community Medicine, RD Gardi Medical College,
Ujjain, Madhya Pradesh, India

B. Eriksson
Nordic School of Public Health,
Gothenborg, Sweden

Introduction

The pluralistic health care system in India includes a large heterogeneous private health sector (World Health Organization, Health statistics 2006). The dominance of private health care paid for mostly out-of-pocket is well known; 80% of people use the private sector for outpatient curative services as a first point of contact in rural and urban areas (National Sample Survey Organization 2006). The National Health Accounts for India, 2001–2002 showed that 77.4% of total health expenditure in the country came from private sources (mostly as out-of-pocket expenditure) (Government of India 2005). Nearly half (48.1%) was paid for primary curative or ambulatory services, which would include conditions high on the government's priority list for public health intervention (diarrhea, respiratory infections, tuber-

culosis, malaria, and sexually transmitted diseases). Ambulatory care refers to the individuals and institutions that deliver personal health care services on an outpatient basis (Berman 2000). The private sector has a virtual monopoly over ambulatory curative services in both rural and urban areas in India (Duggal 2007).

It is estimated that 62% of disability-adjusted life years (DALYs) lost in low income countries are addressed primarily through personal ambulatory care service interventions (Wagstaff 2000). For children under 5 years, ambulatory care interventions are the main source of action for about 75% of those conditions (Murray et al. 1996). Further, it is argued that ambulatory care services are the major contributor to large and inequitable health financing burdens borne by households in such settings, paid for largely out-of-pocket. The estimated share of household health spending on ambulatory care varies from 68 to >90% in different low income countries (Berman 2000).

A nationwide study of practitioners used by mothers in India for management of diarrhea in children revealed that 80% of the consultations were with private providers called "doctors" though most of these were unqualified providers. Less than 10% consulted the formal public health institutions (Vishwanathan and Rohde 1990) emphasizing the importance of private providers practicing in solo outpatient setups.

It has been reported that despite the significance of private ambulatory care provision (in terms of resources spent and access) to health care services in India, there is considerable confusion about who these providers are, as well as uncertainty about their numbers, distribution, and activities. There have been increasing calls for more detailed research on the private health care sector, and in particular about private practitioners and their role in providing primary care (Berman 2000; Hanson and Berman 1998).

This paper describes the numbers, gender, distribution, and characteristics of private individual ambulatory care providers (PACP) serving the 60.4 million population resident in the 52,117 villages and 394 towns (Registrar General and Census Commissioner 2001) of Madhya Pradesh (MP), one of India's largest provinces. The paper discusses the suitability of this provider mix in dealing with maternal and child health, a major health priority in this province.

Methods

Study setting Spread over an area of 30,400 km^2, 73% of MP's 60.4 million population is rural (Registrar General and Census Commissioner 2001), 37% living below poverty line (Government of Madhya Pradesh 2007). The province is divided into 45 administrative districts (recently 48, as 3 districts have been subdivided to form new districts; though for this study, we have considered 45). Each district has a population of 1–1.5 million people. The province has a literacy rate of 64%, and infant mortality stands at 79/10,000 live births (Registrar General & Census Commissioner & Government of India 2006). The public sector health care system, as elsewhere in the country exists as a multilevel tiered system, from rural subcenters to large district hospitals. A large, heterogeneous, private health sector that operates on a fee for service basis exists alongside the public sector system. The private sector, as elsewhere in India, is a dominant constituent of the health system.

Data collection Data were collected as part of a province-wide survey of health care providers carried out in 2004 to assess the size and composition of the private health sector in connection with the development of a health information system in MP. The cross-sectional survey was done from April 2004 to December 2004. All chief health officers in each of the 45 districts were informed by the Provincial Directorate of Health about the planned survey (De Costa et al. 2008). A questionnaire (in Hindi) was developed with the participation of the Department of Health at the provincial and district levels. The questionnaire included information on provider name, sex, ownership (governmental or private), and medical qualifications. A total of 1,038 person-months were invested in the survey, which covered the 52,117 villages and 394 towns of the province. Details of the survey methodology, pilot tests, and supervision methods have been described earlier (De Costa et al. 2008).

PACP in this setting include providers who are variously qualified and practicing different systems of medicine in solo outpatient setups. While private institutions (De Costa and Diwan 2007) may also be sought for outpatient care, this is less often the case and is restricted to urban areas where large private hospitals exist. More often, private providers practice in outpatient setups and admit patients when necessary into institutions to which they may have a part-time attachment.

Analysis

PACPs were categorized based on qualification. Qualified physicians included those with formal university degrees to practice allopathic (Western) or Indian systems of medicine and homeopathy (ISMH). Nonphysician categories included qualified paramedics (health staff with a formal training, e.g., pharmacists, laboratory technicians, radiographers, health workers, barefoot doctors, etc.), traditional birth attendants (TBAs), and unqualified providers.

Results

Characteristics of qualified physician PACPs in Madhya Pradesh: Of the 19,171 private physicians mapped in the survey (De Costa and Diwan 2007), the majority, 74.6% (14,046), practiced solo as outpatient providers. Only 12.5% of these physicians were women (Table 1).

System of medicine As Table 1 shows, 59% had qualified in allopathy (conventional Western medicine), while the other 41% had qualified in ISMH.

Of the 8,289 qualified in allopathy, 51% had a basic medical degree, 42.6% had some specialist training, and 6.3% were qualified dentists. Of the 5,757 qualified in ISMH, 58.1% were qualified in ayurveda, 35% in homeopathy, and 6.8% in unani. (*See appendix for systems*).

The availability of women physicians was low at 2.9/100,000 persons; most (82.7%) were allopathic.

Practice across systems was reported by ISMH physicians (39.8% said that they also practiced allopathy). However, <1% allopathic physicians reported practicing across systems.

Commercial orientation Only 1% of all solo physicians reported practicing not for profit.

Physician PACPs in the district subgroups While studying the range of private physician density (3.3–136.8/100,000) in the districts, it was found that certain districts seemed to have relatively high numbers of physicians. We found that there was a good correlation (r= 0.84) between private physician density and the level of urbanization (as measured by the proportion urban population) in a given district (see Fig. 1).

We therefore decided to split the districts into two groups, based on the level of urbanization: group 1 comprising districts with >50% urbanization and group 2 with <50% urbanization. These two groups were analyzed separately.

Group 1 (or urban districts) consisted of 4 districts—Indore, Bhopal, Jabalpur, and Gwalior—which together comprised 8.1 million of the province's 60.4 million population (13.4%). These 4 districts also host the 4 largest cities in the province, which are the economic hubs of MP. The remaining 41 districts comprised group 2 (population of 52.3 million).

Distribution of private sector solo physicians between the district groups

As seen in Table 2, private solo physicians were four times more concentrated in the urban (group 1) districts than in the less urban (group 2) districts. Women physicians were even more concentrated (eightfold) in the urban districts.

Qualification system: Nearly half (49.3%) of all private solo allopathic providers in the province were located in the 4 urban districts. However, most of ISMH physicians (80%) were located in the 41 less urban districts and were more similarly distributed in both groups with respect to density.

When gender distribution was analyzed, it was noted that women allopathic and ISMH doctors (not shown in the table) were concentrated tenfold and fourfold, respectively, in the urban districts. Densities of women physicians per 100,000 persons (1.1 and 0.4, respectively, in the two district groups) were low.

Other nonphysician private individual PACPs

This includes three categories:

1. Qualified paramedics: Of the 66,303 private qualified paramedics mapped in the survey (De Costa and Diwan 2007), 87% (57,684) worked as solo providers (mainly rural). Only 3.4% of these were women.
   This group was comprised largely of the 44,841 Jan Swasth Rakshaks (JSR or barefoot doctor). Pharmacists (and compounders) were the second largest group. These two subgroups reported practicing allopathy. Others in this group included diploma holders (a short version of the full qualification) in Indian systems and laboratory technicians.
2. Traditional birth attendants: 55,393 (0.01% male) were mapped (De Costa and Diwan 2007). These had undergone some training for a few weeks (mostly from the government under the reproductive and child health program).

Table 1 Physician PACPs by gender and qualification system of medicine

	Total number (per 100,000 persons)	Males (per 100,000 persons)	Females (per 100,000 persons)
Private sector solo physicians	14,046 (23.2)	12,218 (20.2)	1,793 (2.9)
Qualification system			
Allopathy	8,289 (13.7)	6,821 (11.2)	1,443 (2.4)
ISMH	5,757 (9.5)	5,397 (8.9)	350 (0.6)

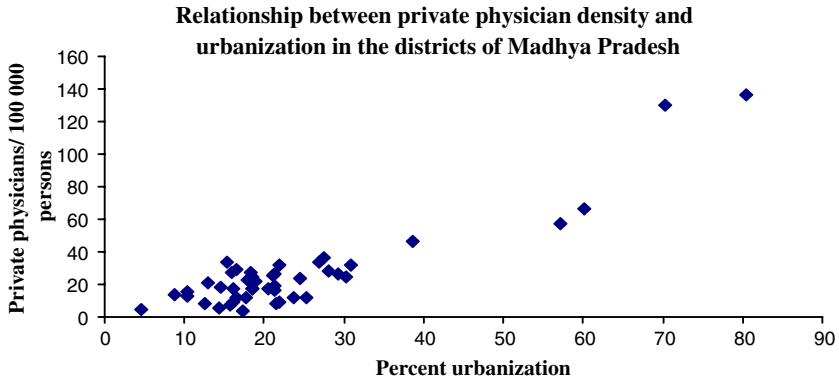

Fig. 1 Relationship between private physician density and urbanization in the districts of Madhya Pradesh

3. Unqualified providers: Of 89,090 unqualified providers surveyed (De Costa and Diwan 2007), 98.9% were solo providers mostly (90.1%) in rural areas. (It is likely that there are many more of these in urban areas, but the urban numbers were more difficult to estimate and are underreported in this study.) Excluding the subgroup of untrained birth attendants (17.7%), most of these providers (97.2%) were male (commonly called "registered medical practitioners" or RMPs).

The macro organization of ambulatory care in this setting

While this study focuses on individual PACPs who provide the bulk of ambulatory care, institutional providers of ambulatory care also exist in both the public and private sectors (Berman 2000; De Costa and Diwan 2007). Further, some individual qualified PACPs (physicians and qualified paramedics) may be affiliated with institutions (public and private), where they practice part of the time. Unqualified providers are largely solo practitioners with no institutional affiliations (though informal referral linkages may exist), as are TBAs. A diagrammatic schema of the macro organization of ambulatory care providers in this setting is shown in Fig. 2. The diagram does not take into account the system of medicine practiced, as this does not influence the macro organization in any way.

Physician PACPs may in addition to their solo practices have affiliations with institutions (hospitals, nursing homes). As dual practice is allowed in this setting, many physicians working full time with public sector institutions may have their own private solo practices in the evenings. However, in this study, only physicians working full time exclusively in the private sector have been included (i.e., the total of 14,046 may be somewhat higher if public sector physicians who practice privately are counted). Institutions refer to health centers and hospital facilities. These have been described in our earlier publication (De Costa and Diwan 2007). The referral linkages between different categories of PACPs are shown. Qualified paramedics will refer difficult patients to either institutions or qualified physicians; TBAS will mostly refer women whose deliveries they cannot handle successfully to institutions. In this setting, the market dynamics result in subtle competition between the unqualified providers and the qualified paramedics, resulting in a weak referral link between them (TARU 2002).

Table 2 Physician (PACP) distribution between the two groups of districts (absolute numbers and per 100,000 population)

	Total physicians (per 100,000 persons)		Ratio per 100,000 persons
	Group 1 (n=4)	Group 2 (n=41)	Group 1:group 2
Private solo physicians	5,208 (64.3)	8,837 (16.9)	3.8:1
Private solo male physicians	4,214 (52)	8,003[a] (15.3)	3.4:1
Private solo female physicians	994 (12.3)	799[a] (1.5)	8.2:1
Qualification system			
Allopathy	4,069 (50.2)	4,185 (8.1)	6.2:1
ISMH	1,139 (14.1)	4,607 (9.5)	1.5:1

[a] Sex is missing for 35 physicians in group 2

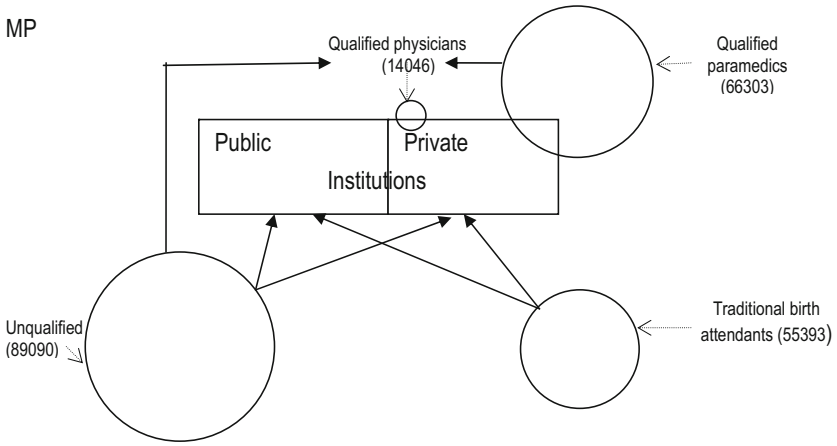

Fig. 2 Diagram of the macro organization of ambulatory care provision in MP. *Solid arrows* imply referral linkages. *Circles* refer to individual PACPs (size proportional to numbers in MP), while *blocks* refer to institutions. *Overlaps* refer to individuals also affiliated with institutions

Limitations

The issue of double counting: To minimize double counting of outpatient providers practicing at multiple locations, the data were scanned manually blockwise, and providers appearing twice or more in the same block were removed to leave only one entry against the provider. "Traveling providers," described in some districts (those who travel on motor cycles from village to village for a few hours each day providing health care) were omitted from this survey.

District variations in provider density are wide, especially for physicians (seen in Fig. 1) but also for other categories. These variations are unseen when means are presented.

Discussion

There have been reports on the lack of data about and a feasible typology for ambulatory care providers in the literature, despite the importance of their services in the health systems in low income settings (Berman 2000). This paper describes the 0.2 million individual PACPs in a low income setting, MP province, India. Our study in MP showed a large, diverse group of individual PACPs. Personal ambulatory care services are particularly suited to the development of competitive markets (Preker et al. 1999), given that such services are discrete and time bound, and frequently used. Individual PACPs can easily adjust prices and quality in a weakly regulated environment. This results in a pluralistic PACP market, offering similar services to consumers at a variety of price and quality levels (Berman 2000). In MP, only 35% of all PACPs were formally qualified, 6.2% of whom were physicians [while the remainder were variously qualified paramedics (largely JSRs)]. Physicians were concentrated in the more urban districts. The study showed that overall there were few female physicians (2.9/100,000) who were relatively densely located in these districts. This implies even fewer female physicians in the 41 less urban districts (1.5/100,000).

Maternal and child health are priorities in this province. The province records a maternal mortality ratio (MMR) of 379 per 100,000 (Registrar General and India 2001–2003), one of the highest of any province in the Indian Union. A high proportion of children (60.3%) under 3 years are malnourished (International Institute for Population Sciences 2007) making them prone to infections which contribute significantly to child mortality in the province (Jones et al. 2006).

Preventive services, including antenatal care, are provided mostly via public sector health workers in the rural areas. Qualified physicians (in both sectors) provide these services in the urban areas. However in rural MP, only 34% of pregnant women are reported to have received the necessary three antenatal care checkups (International Institute for Population Sciences 2007), indicating that the uptake of antenatal care is poor. A study analyzing antenatal care in the four large north Indian provinces reported that about three fifths of rural women did not receive any antenatal checkup during their last pregnancy. Only about 13% of pregnant women had their blood pressure checked and a blood test done at least once. Women visited by health workers received fewer services compared to women who visited a health facility. Home visits by health workers were biased towards households with a better standard of living. Besides criticizing the quality of antenatal care their data indicated that skill mix in service provision may not be optimal: around 62% of those who had received antenatal care reported consultations with a female health worker and 55% with a doctor (Pallikadavath et al. 2004). Besides the public sector female health worker, there is little other qualified care available to the women. (Paramedic PACPs are mostly male, whom women are unlikely to visit for antenatal care in this setting because of the gender barrier.) A more recent study also

reported the poor quality of antenatal care in the north Indian states and the negative influence this could have on the uptake of such care (Rani et al. 2008). The same is the case with skilled attendance at delivery. Most deliveries (80%) take place at home (International Institute for Population Sciences 2007). Only 28% of deliveries in rural MP are attended by a skilled person (International Institute for Population Sciences 2007), most often by the TBA who has limited technical competence. Our study shows that a cadre of qualified competent health care providers for antenatal and intranatal care is lacking. This places an excessive reliance on TBAs, as they are the only available resource to deliver these services. This absence of better qualified competent care could be a major contributing factor to the high MMR seen in this setting. There has recently been advocacy for the creation of a competent trained midwife cadre to make maternity safer (Mavalankar et al. 2008).

Much of child mortality (excluding neonates) in this setting is caused by acute respiratory infection (ARI), diarrhea, and other infectious diseases (Jones et al. 2006). While there are no reports on treatment-seeking behavior from this province, a nationwide study on initial treatment seeking for children's diarrhea indicated a strong preference for local, easily accessible private providers (Vishwanathan and Rohde 1990), given the lower barriers to access. Again in the rural areas, many of these providers tend to be unqualified. Qualified paramedics largely operate for profit and hence are liable to create an induced demand for their services, compromising on quality. PACPs differ in the prices they charge for services and other costs. Such provider attributes influence how much care is demanded and where it is delivered. Besides costs, providers differ in the quality (both perceived and technical) of services provided. Often users who can most benefit from an intervention select those provider types with the lowest technical competence because they perceive them to be of better quality or because of lower access costs (Berman 2000).

There has been much debate about the role of the private health care sector, and especially of for-profit private health care providers, in the management of communicable diseases like tuberculosis (Uplekar et al. 2001), malaria (Kamat 2001), and sexually transmitted diseases (Ramachandar and Pelto 2002). There have been increasing calls for more detailed research on the private health care sector, and in particular about private practitioners and their role in providing primary care (Berman 2000; Hanson and Berman 1998). This paper restricts itself to private providers who work in solo outpatient setups (De Costa and Diwan 2007).

In conclusion, the characteristics and distribution of PACPs in the province is not optimally suited to the health needs of the population in this setting. A lack of adequate competence among the PACPs to deal with the major causes of morbidity and mortality in MP is seen, and this is more pronounced in the rural areas. A significant cadre of competent midwives is missing in this setting, possibly accounting for some of the high maternal mortality seen here.

Acknowledgements The Madhya Pradesh Basic Health Services Project, Bhopal, India and the Swedish Institute, Stockholm

Conflict of interest The authors confirm that there are no relevant associations that might pose a conflict of interest.

Appendix

Indian systems of medicine comprise a number of indigenous systems including ayurveda, unani, homeopathy, siddhi and other systems. Full recognized licenced physician qualifications are awarded by universities in either ayurveda, unani or homeopathy. The Department of Indian Systems of Medicines and Homoeopathy (ISM & H) was set up in Ministry of Health & Family Welfare, Government of India, in March, 1995. The department currectly functions as Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy under the Ministry of Health. Details on each of the systems can be found at the official website of the Department of Indian Systems of Medicine at http://indianmedicine.nic.in/.

References

Berman P (2000) Organization of ambulatory care provision: a critical determinant of health system performance in developing countries. Bull World Health Organ 78(6):791–802

De Costa A, Diwan V (2007) 'Where is the public health sector?' Public and private sector healthcare provision in Madhya Pradesh, India. Health Policy 84(2–3):269–276

De Costa A, Saraf V, Jhalani M, Mahadik VK, Diwan VK (2008) Managing with maps? The development and institutionalization of a map-based health management information system in Madhya Pradesh, India. Scand J Public Health 36(1):99–106

Duggal R (2007) Poverty & health: criticality of public financing. Indian J Med Res 126(4):309–317

Government of India (2005) National health accounts, India 2001–2002. National Health Accounts Cell. Ministry of Health and Family Welfare, New Delhi

Government of Madhya Pradesh (2007) The Fourth Madhya Pradesh human development report. Bhopal

Hanson K, Berman P (1998) Private health care provision in developing countries: a preliminary analysis of levels and composition. Health Policy Plan 13(3):195–211

International Institute for Population Sciences (2007) National Family Health Survey (NFHS-3) 2005–06: India. Volume I. Mumbai, India

Jones G, Schultink W, Babille M (2006) Child survival in India. Indian J Pediatr 73(6):479–487

Kamat VR (2001) Private practitioners and their role in the resurgence of malaria in Mumbai (Bombay) and Navi Mumbai (New Bombay), India: serving the affected or aiding an epidemic. Soc Sci Med 52(6):885–909

Mavalankar D, Vora K, Prakasamma M (2008) Achieving Millennium Development Goal 5: is India serious? Bull World Health Organ 86(4):243–243A

Murray CJL, Lopez AD, Harvard School of Public Health, World Health Organization, World Bank (1996) The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Harvard School of Public Health on behalf of the World Health Organization and the World Bank, Cambridge, MA; distributed by Harvard University Press

National Sample Survey Organization (2006) Morbidity, health care and conditions of the aged: sixtieth round (January–June 2004). National Sample Survey Organization, New Delhi

Pallikadavath S, Foss M, Stones RW (2004) Antenatal care: provision and inequality in rural north India. Soc Sci Med 59 (6):1147–1158

Preker AS, Harding A, Girishankar N (1999) The economics of public and private participation in health care: new insights from institutional economics. The World Bank, Washington DC

Ramachandar L, Pelto PJ (2002) The role of village health nurses in mediating abortions in rural Tamil Nadu, India. Reprod Health Matters 10(19):64–75

Rani M, Bonu S, Harvey S (2008) Differentials in the quality of antenatal care in India. Int J Qual Health Care 20(1):62–71

Registrar General, India (2001–2003) Sample Registration System, New Delhi

Registrar General & Census Commissioner (2001) Census of India

Registrar General & Census Commissioner, Government of India (2006) Sample registration system Bulletin. http://www.censusindia.gov.in/Vital_Statistics/SRS_Bulletins/SRS_Bulletins_links/SRS_Bulletin-October-2006.pdf. Accessed 3 May 2008

TARU (2002) Study on the dynamics and structure of the private health sector in Madhya Pradesh India

Uplekar M, Pathania V, Raviglione M (2001) Private practitioners and public health: weak links in tuberculosis control. Lancet 358 (9285):912–916

Vishwanathan H, Rohde J (1990) Diarrhea in rural India: a nationwide survey of mothers and practitioners. Vision Books, New Delhi

Wagstaff A (2000) Socioeconomic inequalities in child mortality: comparisons across nine developing countries. Bull World Health Organ 78(1):19–29

World Health Organization, Health statistics (2006). http://www.who.int/whosis/database/core/core_select_process.cfm. Accessed 22 April 2007